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## NOTICE OF ALLOWANCE AND FEE(S) DUE

34872 7590 05/28/2008

Basell USA Inc.  
Delaware Corporate Center II  
2 Righter Parkway, Suite #300  
Wilmington, DE 19803

EXAMINER

CHOI, LING SIU

ART UNIT

PAPER NUMBER

1796

DATE MAILED: 05/28/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/537,077

06/01/2005

Diego Brita

FE 6085 (US)

8072

TITLE OF INVENTION: CATALYST COMPONENTS FOR THE POLYMERIZATION OF OLEFINS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	08/28/2008

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
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**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

34872 7590 05/28/2008

**Basell USA Inc.**  
**Delaware Corporate Center II**  
**2 Righter Parkway, Suite #300**  
**Wilmington, DE 19803**

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## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,077	06/01/2005	Diego Brita	FE 6085 (US)	8072

**TITLE OF INVENTION:** CATALYST COMPONENTS FOR THE POLYMERIZATION OF OLEFINS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	08/28/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHOI, LING SIU	1796	526-124200

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_
- 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

**NOTE:** The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

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10/537,077	06/01/2005	Diego Brita	FE 6085 (US)	8072
34872	7590	05/28/2008	EXAMINER	
Basell USA Inc. Delaware Corporate Center II 2 Righter Parkway, Suite #300 Wilmington, DE 19803			CHOI, LING SIU	
			ART UNIT	PAPER NUMBER
			1796	
DATE MAILED: 05/28/2008				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

**Notice of Allowability**

Application No.

10/537,077

Applicant(s)

BRITA ET AL.

Examiner

Art Unit

Ling-Siu Choi

1796

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 04/21/2008.
2. ☒ The allowed claim(s) is/are 1-11, 13 and 15-30.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date ____     | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other ____.   |

### OFFICE ACTION

1. This Office Action is in response to the Amendment and the Declaration, both being filed on 04/21/2008. Claim 14 was canceled and claims 29-30 have been added. Claims 1-13 and 15-30 are now pending, wherein claims 1-11, 13, and 29-30 are drawn to a solid catalyst component; claims 15-24 are drawn to a catalyst; and claims 25-28 are drawn to a process for (co)polymerizing olefin(s).

### *Examiner's Amendment*

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jarrod N. Raphael on May 13, 2006.

3. The application has been amended as follows:

**Cancel claim 12** without prejudice:

Claim 1, lines 7-8, change "a molar ratio Mg/Ti is higher than 5" to --a molar ratio Mg/Ti is from 7 to 120--;

Claim 15, lines 8-9, change "a molar ratio Mg/Ti is higher than 5" to --a molar

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ratio Mg/Ti is from 7 to 120--;

Claim 25, lines 11-12, change “a molar ratio Mg/Ti is higher than 5” to --a molar ratio Mg/Ti is from 7 to 120--.

***Allowable Subject Matter***

4. Claims 1-11, 13, and 15-30 are allowed.

5. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Goeke et al. (EP 0 004 647 A2) and Ala-Hulkku et al. (EP 0 416 928 A2).

Summary of Claim 1:

A <b>solid catalyst component</b> to polymerize olefins comprising
Mg,
a titanium compound selected from titanium tetrahalides, or of formula $TiX_n(OR^1)_{4-n}$ , wherein $0 \leq n \leq 3$ , X is halogen, and $X^1$ is C <sub>1-10</sub> hydrocarbon group
a halogen
an electron donor compound(ED): ethers, esters, amines, ketones, or nitriles
wherein the molar ratio of <u>Mg/Ti = 7-120</u> and the molar ratio of ED/Ti > 3.5

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## Summary of Claim 15:

A <b>catalyst</b> for the polymerization of olefins comprising a product obtained by contacting	
A	<p>a solid catalyst component comprising</p> <p><u>Mg</u>,</p> <p>a <u>titanium compound</u> selected from titanium tetrahalides, or</p> <p style="padding-left: 100px;">of formula <math>\text{TiX}_n(\text{OR}^1)_{4-n}</math>, wherein <math>0 \leq n \leq 3</math>,</p> <p style="padding-left: 100px;">X is halogen, and <math>\text{X}^1</math> is <math>\text{C}_{1-10}</math> hydrocarbon group,</p> <p>a halogen, and</p> <p>an electron donor compound (ED) selected from ethers, esters, amines, ketones,</p> <p style="padding-left: 100px;">or nitriles</p>
	wherein the molar ratio of <u>Mg/Ti = 7-120</u> and the molar ratio of ED/Ti > 3.5
B	at least one aluminum compound and <b>optionally</b> ,
C	an external electron donor compound

## Summary of Claim 25:

A process of (co)polymerizing olefin in the presence of a catalyst comprising a product obtained by contacting:	
A	<p><b>a solid catalyst component</b> comprising</p> <p><u>Mg</u>,</p> <p>a titanium compound selected from <u>titanium tetrahalides</u>, or</p> <p style="padding-left: 100px;">of formula <u><math>\text{TiX}_n(\text{OR}^1)_{4-n}</math></u>, wherein <math>0 \leq n \leq 3</math>,</p> <p style="padding-left: 100px;">X is halogen, and <math>\text{X}^1</math> is <math>\text{C}_{1-10}</math> hydrocarbon group, a halogen,</p> <p>an electron donor compound (ED) selected from ethers, esters, amines, ketones,</p> <p style="padding-left: 100px;">or nitriles</p>
	wherein the molar ratio of <u>Mg/Ti = 7-120</u> and the molar ratio of ED/Ti > 3.5
B	at least one aluminum compound and optionally,
C	an external electron donor compound

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Goeke et al. disclose a process to form a copolymer of ethylene and a comonomer in gas phase in the presence of catalyst which comprises (A) a precursor in the formula of  $Mg_mTi_n(OR)_pX_q[ED]_q$  and (B) an activator having the formula of  $Al(R'')_cX'_dH_e$ ; wherein **the precursor** is the contact product of a titanium compound  $[Ti(OR)_aX_b]$ , a magnesium compound  $[MgX_2]$ , and an electron donor - Mg/Ti = about 0.5-56 (preferably about 1 to 5) and electron donor/Ti = about 2-85 (preferably about 3 to 10); the electron donor is alkyl esters of aliphatic and aromatic carboxylic acids, aliphatic ethers, cyclic ethers, and aliphatic ketones – tetrahydrofuran and ethyl acetate being exemplified; the activator is  $Al(C_2H_5)_3$ ,  $Al(C_2H_5)_2Cl$ ,  $Al(i-C_4H_9)_3$ ,  $Al(C_6H_{13})_3$ ,  $Al(C_8H_{17})_3$ , or mixtures thereof; the comonomer is  $C_{3-8}$  comonomer in an amount of at least 1 to 10 mol % (page 12-14 - especially page 14, lines 1-11 and 27-31; page 19, lines 31-37; page 20, lines 1-30; claim 1). However, Goeke et al. do not teach or fairly suggest the claimed solid catalyst component, in particular, wherein the solid catalyst component is obtained by the contact of Mg with the titanium compound selected from titanium tetrahalides, or of formula  $TiX_n(OR)^1_{4-n}$  [ $0 \leq n \leq 3$ ] and an electron donor compound (ED) selected from ethers, esters, amines, ketones, or nitriles with molar ratio of Mg/Ti being from 7 to 120.

Ala-Hulkku et al. disclose a catalyst comprising (A) a solid carrier with a magnesium compound, an electron donor compound, and monocyclopentadienyl titanium trichloride on its surface and (B) a cocatalyst which is preferably trialkylaluminum or alkylaluminum halide; wherein the electron donor is an alkyl ester of a carboxylic acid, an aliphatic ester, a cyclic ether, or an aliphatic ketone and



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tetrahydrofuran is exemplified as the electron donor;  $Mg/Ti = 1 - 10$  [ $Ti/Mg = 0.1$  to  $1.0$ ];  
electron donor/ $Ti = 0.05-4.5$  [electron donor/  $Mg =$  electron donor/ $Ti = (0.5-4.5)(0.1-1.0)$ ]  
(abstract; page 3, lines 39-51 ; page 4, lines 18-20; page 5, lines 52; claim 5).

However, Ala-Hulkku et al. do not teach or fairly suggest the claimed solid catalyst component, in particular, wherein the solid catalyst component is obtained by the contact of Mg with the titanium compound selected from titanium tetrahalides, or of formula  $TiX_n(OR^1)_{4-n}$  [ $0 \leq n \leq 3$ ] and an electron donor compound (ED) selected from ethers, esters, amines, ketones, or nitriles with molar ratio of Mg/Ti being from 7 to 120.

Furthermore, the Declaration demonstrates that

ethylene-1-butene copolymerization				
	Mg/Ti	Polymer produced	Catalyst activity	PE/g-ct/hr
comparative example	3	93	0.7	3.7
example of the present invention	7.8	195	15.9	8.1

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Conclusion**

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

/Ling-Siu Choi/

Primary Examiner, Art Unit 1796

May 17, 2008